

Application No. 10/635,821
Response to Office Action

Customer No. 01933

Listing of Claims:

1. (Currently Amended) An image comparison apparatus
comprising:

observation image capturing means for capturing at least one
of a macroscopic observation image of a specimen or and a
5 microscopic observation image of the specimen;

photographing means for photographing on the observation
image captured by the observation image capturing means;

recording means for recording a reference image prepared in
advance; and

10 display means for displaying the reference image and
observation a comparison image photographed by the photographing
means ~~as a comparison image, and also displaying the reference~~
~~image recorded on the recording means on the display means so as~~
to allow comparison ~~between the comparison image and the~~
15 ~~reference image~~ observation therebetween;

wherein the display means comprises a first image display
area in which the reference image is displayed, a second image
display area in which the comparison image is displayed, and a
third image display area in which the reference image and the
20 comparison image are simultaneously displayed to allow the
comparison observation.

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2. (Currently Amended) The apparatus according to claim 1, wherein the observation image capturing means comprises at least one of:

illumination means for irradiating the specimen with light
5 ~~and making so as to make~~ scattered light therefrom observable,

illumination means for irradiating the specimen with light
~~and making so as to make~~ fluorescence therefrom observable,

illumination means for irradiating the specimen with
polarized light ~~and making so as to make~~ scattered light
10 therefrom observable, and

illumination means for transmitting light through the
specimen ~~and making so as to make~~ transmitted light observable.

3. (Original) The apparatus according to claim 1, wherein the display means displays the comparison image as a live image.

4. (Currently Amended) The apparatus according to claim 1, wherein ~~the display means displays~~ an addition image obtained by adding the comparison image and the reference image at an arbitrary ratio is displayed in the third image display area.

5. (Currently Amended) The apparatus according to claim 1, wherein ~~the display means alternately displays~~ the comparison

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image and the reference image are alternately displayed in the third image display area at predetermined time intervals.

6. (Currently Amended) The apparatus according to claim 1, wherein ~~the display means displays~~ at least one of the comparison image and the reference image is displayed in the third image display area after ~~adjusting a brightness thereof is adjusted~~ by integration processing.

7. (Currently Amended) The apparatus according to claim 1, wherein ~~the display means displays~~ the comparison image and the reference image are displayed in the third image display area ~~upon further superimposing with~~ a lattice with a predetermined spacing superimposed thereon.

8. (Currently Amended) The apparatus according to claim 1, wherein ~~the display means performs~~ subtraction between the comparison image and the reference image is performed and the comparison image is displayed in the third image display area
5 ~~performs display based on the basis a result~~ of the subtraction result.

9. (Currently Amended) An image comparison apparatus comprising:

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a macro-observation unit ~~which captures~~ including an optical system for observing a macroscopic observation image of a specimen;

a micro-observation unit which ~~captures~~ is disposed at a position different the macro-observation unit which and includes an optical system for observing a microscopic observation image of the specimen;

a stage which moves the specimen between the macro-observation unit and the micro-observation unit;

a camera which photographs ~~an~~ at least one of the macroscopic observation image and the microscopic observation image of a the specimen on the stage which is captured by the macro-observation unit and the micro-observation unit;

optical path switching means for switching ~~an~~ between optical ~~path~~ paths from the macro-observation unit ~~or and~~ the micro-observation unit to the camera;

a recording medium which records an observation image photographed by the camera as a reference image; and

display means for displaying the observation image photographed by the camera as a comparison image and ~~also~~ displaying the reference image recorded on the recording medium so as to allow comparison between the ~~images~~ comparison image and the reference image.

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10. (Currently Amended) The apparatus according to claim 9, ~~further comprising wherein each of the macro-observation unit and the micro-observation unit comprises:~~

at least one of: a polarization illumination source, an epi-illumination source, fluorescence illumination source, a focal illumination source, transmitted illumination source, and an infrared illumination source; [[,]] and

means for operating brightness and an ON/OFF operation of the at least one illumination source.

11. (Currently Amended) The apparatus according to claim 9, wherein the display means ~~includes~~ comprises:

a first image display area in which ~~a~~ the reference image is displayed; [[,]]

a second image display area in which ~~a~~ the comparison image is displayed; [[,]] and

a third image display area in which the reference image and the comparison image are simultaneously displayed, ~~and allows so as to allow~~ comparison and observation of the reference image and the comparison image ~~in the third display area.~~

12. (Currently Amended) The apparatus according to claim 11, ~~wherein the apparatus further comprises~~ comprising:

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split image display means ~~having a function capable of~~
~~vertically or horizontally~~ for splitting the third image display
5 ~~area of the display means, displaying the one of vertically and~~
~~horizontally into~~ split first and second partial areas ~~as a for~~
~~respectively displaying the reference image display area and a~~
~~the comparison image display area, respectively, and for~~
vertically and horizontally moving ~~positions of the displayed~~
10 ~~images; [[,]]~~

overlap image display means ~~having a function capable of for~~
displaying, in the third image display area, an image obtained by
adding: (a) an image obtained by multiplying a luminance ratio
between ~~a the~~ reference image and ~~a the~~ comparison image by m/n
15 where ~~n and m~~ n and m are arbitrary integers ($n \geq m$) to (b) an
image obtained by multiplying the luminance ratio by $(n - m)/n$,
and for gradually adjusting the luminance ratio between the
reference image and the comparison image by changing the integers
n and m; ~~[[,]]~~ and

20 image switching display means ~~having a function of capable~~
~~of for~~ alternately switching and displaying ~~a the~~ reference image
and ~~a the~~ comparison image in the third image display area at
predetermined time intervals, and for adjusting an image
switching time, ~~and~~

25 ~~allows comparison and observation of the reference image and~~
~~the comparison image in the third image display area.~~

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13. (Currently Amended) An image comparison method
comprising:

capturing at least one of a macroscopic observation image
and a microscopic observation image of a specimen;

5 photographing the captured observation image;

displaying a reference image prepared in advance in a first
display area of a display unit;

displaying a comparison image obtained from the photographed
observation image in a second display area of the display unit;

10 and

displaying, of an entire or in a third display area of the
display unit, at least a part of a comparison the reference image
displayed in the first display area obtained from the
photographed observation image and an entire or at least a part
15 of a reference the comparison image displayed in the second
display area prepared in advance so as to allow comparison
therebetween.

14. (Currently Amended) The method according to claim 13,
wherein ~~a~~ at least one of the comparison image ~~or and the~~
reference image ~~obtained from the observation image is displayed~~
~~after~~ has a brightness ~~is~~ thereof adjusted by integration
processing before being displayed.

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15. (Currently Amended) The method according to claim 13, wherein the comparison image and the reference image are displayed ~~while~~ in the third display area with a lattice with a predetermined spacing ~~is~~ superimposed thereon.

16. (Currently Amended) The method according to claim 13, wherein ~~the displaying includes displaying~~ at least one of the comparison image and the reference image ~~in the form of is~~ displayed as a live image.

17. (Currently Amended) An image comparison method comprising:

capturing at least one of a macroscopic observation image or
and a microscopic observation image of a specimen;

photographing the captured observation image;

displaying a reference image prepared in advance in a first
display area of a display unit;

displaying a comparison image obtained from the photographed
observation image in a second display area of the display unit;

and

displaying, in a third display area of the display unit, an
addition image obtained by adding a the reference image displayed
in the first display area and the comparison image obtained from
the photographed observation image to a reference image prepared

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~~in advance~~ displayed in the second display area at an arbitrary ratio.

18. (Currently Amended) The method according to claim 17, wherein ~~a~~ at least one of the comparison image or and the reference image ~~obtained from the observation image is displayed~~ after has a brightness is thereof adjusted by integration processing before being displayed.

19. (Currently Amended) The method according to claim 17, wherein the comparison image and the reference image are displayed ~~while~~ in the third display area with a lattice with a predetermined spacing ~~is~~ superimposed thereon.

20. (Currently Amended) An image comparison method comprising:

capturing at least one of a macroscopic observation image ~~or~~ and a microscopic observation image of a specimen;

photographing the captured observation image;

displaying a reference image prepared in advance in a first display area of a display unit;

displaying a comparison image obtained from the photographed observation image in a second display area of the display unit;

and

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alternately displaying, in a third display area of the display unit, the reference image displayed in the first display area and the comparison image displayed in the second display area ~~a comparison image obtained from the photographed observation image and a reference image prepared in advance at predetermined time intervals.~~

21. (Currently Amended) The method according to claim 20, wherein ~~a~~ at least one of the comparison image or and the reference image obtained from the observation image is displayed after has a brightness is thereof adjusted by integration processing before being displayed.

22. (Currently Amended) The method according to claim 20, wherein the comparison image and the reference image are displayed ~~while~~ in the third display area with a lattice with a predetermined spacing ~~is~~ superimposed thereon.

23. (Currently Amended) An image comparison method comprising:

capturing at least one of a macroscopic observation image ~~or~~ and a microscopic observation image of a specimen;
photographing the captured observation image; ~~and~~

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displaying a reference image prepared in advance in a first display area of a display unit;

displaying a comparison image obtained from the photographed observation image in a second display area of the display unit;

performing subtraction between the reference image displayed in the first display area and the comparison image displayed in the second display area; ~~the photographed observation image and a reference image prepared in advance,~~ and performing

displaying the comparison image in a third display area of the display unit based on the basis a result of the subtraction result.

Claim 24 (Canceled).

25. (Currently Amended) A computer computer-readable storage medium having computer-readable program product ~~configured to store program instructions for execution on code stored thereon that is executable by a computer system enabling~~
5 to cause the computer system to perform a process comprising:

capturing at least one of a macroscopic observation image and a microscopic observation image of a specimen;

photographing the captured observation image;

displaying a reference image prepared in advance in a first
10 display area of a display unit;

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displaying a comparison image obtained from the photographed observation image in a second display area of the display unit;

displaying, of an entire or in a third display area of the display unit, at least a part of a comparison the reference image

15 displayed in the first display area obtained from the photographed observation image and an entire or at least a part of a reference the comparison image displayed in the second display area prepared in advance so as to allow comparison therebetween.

26. (Currently Amended) The program according to claim 25, wherein ~~a~~ at least one of the comparison image or and the reference image obtained from the observation image is displayed after has a brightness is thereof adjusted by integration processing before being displayed.

27. (Currently Amended) The program according to claim 25, wherein the comparison image and the reference image are displayed ~~while~~ in the third display area with a lattice with a predetermined spacing ~~is~~ superimposed thereon.

28. (Currently Amended) The program according to claim 25, wherein ~~the displaying includes displaying~~ at least one of the

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comparison image and the reference image ~~in the form of~~ is displayed as a live image.

29. (Currently Amended) A ~~computer~~ computer-readable
storage medium having computer-readable program product
~~configured to store program instructions for execution on code~~
~~stored thereon that is executable by a computer system enabling~~
5 to cause the computer system to perform a process comprising:
 capturing at least one of a macroscopic observation image ~~or~~
 and a microscopic observation image of a specimen;
 photographing the captured observation image;
 displaying a reference image prepared in advance in a first
10 display area of a display unit;
 displaying a comparison image obtained from the photographed
 observation image in a second display area of the display unit;
 and
 displaying, in a third display area of the display unit, an
15 addition image obtained by adding a the reference image displayed
 in the first display area and the comparison image obtained from
 the photographed observation image to a reference image prepared
 in advance displayed in the second display area at an arbitrary
 ratio.

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30. (Currently Amended) The program according to claim 29, wherein ~~a~~ at least one of the comparison image or and the reference image ~~obtained from the observation image is displayed~~ after has a brightness ~~is thereof~~ adjusted by integration processing before being displayed.

31. (Currently Amended) The program according to claim 29, wherein the comparison image and the reference image are displayed ~~while~~ in the third display area with a lattice with a predetermined spacing ~~is~~ superimposed thereon.

32. (Currently Amended) A ~~computer~~ computer-readable storage medium having computer-readable program ~~product~~ configured to store program instructions for execution on code stored thereon that is executable by a computer ~~system~~ enabling to cause the computer ~~system~~ to perform a process comprising:

capturing at least one of a macroscopic observation image and a microscopic observation image of a specimen;

photographing the captured observation image;

displaying a reference image prepared in advance in a first
10 display area of a display unit;

displaying a comparison image obtained from the photographed
observation image in a second display area of the display unit;

and

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alternately displaying, in a third display area of the
15 display unit, the reference image displayed in the first display
area and the comparison image displayed in the second display
area ~~a comparison image obtained from the photographed~~
~~observation image and a reference image prepared in advance at~~
predetermined time intervals.

33. (Currently Amended) The program according to claim 32,
wherein ~~a~~ at least one of the comparison image ~~or~~ and the
reference image ~~obtained from the observation image is displayed~~
~~after has a~~ brightness is thereof adjusted by integration
processing before being displayed.

34. (Currently Amended) The program according to claim 32,
wherein the comparison image and the reference image are
displayed ~~while~~ in the third display area with a lattice with a
predetermined spacing ~~is~~ superimposed thereon.

35. (Currently Amended) A ~~computer~~ computer-readable
storage medium having computer-readable program product
~~configured to store program instructions for execution on code~~
stored thereon that is executable by a computer ~~system enabling~~
5 to cause the computer system to perform a process comprising:

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capturing at least one of a macroscopic observation image ~~or~~
and a microscopic observation image of a specimen;

photographing the captured observation image; and

displaying a reference image prepared in advance in a first

10 display area of a display unit;

displaying a comparison image obtained from the photographed
observation image in a second display area of the display unit;

performing subtraction between the reference image displayed
in the first display area and the comparison image displayed in

15 the second display area; the photographed observation image and a
reference image prepared in advance; and performing

displaying the comparison image in a third display area of
the display unit based on the basis a result of the subtraction
result.

Claims 36 and 37 (Canceled).

38. (New) An image comparison apparatus comprising:
observation image capturing means for capturing an

observation image of a specimen;

5 photographing means for photographing the observation image
captured by the observation image capturing means;

recording means for recording a reference image prepared in
advance; and

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display means for displaying the reference image and a
comparison image photographed by the photographing means so as to
10 allow comparison observation therebetween;

wherein the display means comprises a first image display
area in which the reference image is displayed, a second image
display area in which the comparison image is displayed, and a
third image display area in which the reference image and the
15 comparison image are simultaneously displayed to allow the
comparison observation.

39. (New) The apparatus according to claim 38, further
comprising:

split image display means for splitting the third image
display area one of vertically and horizontally into split first
and second partial areas for respectively displaying the
reference image and the comparison image, and for vertically and
horizontally moving positions of the displayed images;

overlap image display means for displaying, in the third
image display area, an image obtained by adding: (a) an image
obtained by multiplying a luminance ratio between the reference
image and the comparison image by m/n where n and m are arbitrary
integers ($n \geq m$) to an image obtained by multiplying the
luminance ratio by $(n - m)/n$, and for gradually adjusting the

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luminance ratio between the reference image and the comparison image by changing the integers n and m ; and

image switching display means for alternately switching and displaying the reference image and the comparison image in the third image display area at predetermined time intervals, and for adjusting an image switching time.

40. (New) An image comparison method comprising:

capturing an observation image of a specimen;

photographing the captured observation image;

displaying a reference image prepared in advance in a first
5 display area of a display unit;

displaying a comparison image obtained from the photographed observation image in a second display area of the display unit;
and

displaying, in a third display area of the display unit,
10 both of the reference image displayed in the first display area and the comparison image displayed in the second display area so as to allow comparison therebetween.

41. (New) A computer-readable storage medium having computer-readable program code stored thereon that is executable by a computer to cause the computer to perform a process comprising:

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5 capturing an observation image of a specimen;
photographing the captured observation image;
displaying a reference image prepared in advance in a first
display area of a display unit;
displaying a comparison image obtained from the photographed
10 observation image in a second display area of the display unit;
and
displaying, in a third display area of the display unit,
both of the reference image displayed in the first display area
and the comparison image displayed in the second display area so
15 as to allow comparison therebetween.